ES 492 (H): Honors Seminar in the Earth Sciences: Science in the Movies (3 hours; web enhanced)
Weeks 1 to 5: Spring 2016
Your Host: Doug Haywick

Bulletin Description: Multidisciplinary (Geography, Geology, Meteorology) topics not covered in current Department of Earth Sciences courses. Topic announced prior to registration. Prerequisites: Acceptance into the University Honors Program, the Earth Sciences Honors Program, or permission of the Chair of Earth Sciences. (Completion of this course is required for Earth Sciences Departmental Honors).

Objectives and Goals: Scientific topics have long been favorite subjects for screenplays, and over the past 20 years or so, science-themed movies like Jurassic Park, Armageddon and Indiana Jones have been among the most popular and profitable movies produced. However, from a purely scientific point of view, the movies seldom get the science “right”. In many cases, they get it so wrong that they make the whole storyline laughable. Screenwriters exaggerate core concepts of scientific theory (e.g., global warming), emphasize obscure or obsolete ideas (e.g., instantaneous shifts in magnetic polarity), and/or portray scientists and researchers as everything from larger-than-life super heroes (e.g., Laura Croft) to eccentric alienated loners (too many examples to even list!). Most disturbingly, they paint a murky picture about what science is, how it is studied and the whole concept of scientific doctrine.

In most science-themed movies, there is just enough of an iota of science fact to make them debatably plausible; however, in our society today, many people learn all of their science from these movies. A sizeable percentage of our population does believe the quasi-scientific ideas proposed in the movies. They believe that we can shoot down threatening asteroids, that we can make life in the laboratory, that we can drill down to the bowels of the Earth, that archaeologists really do steal ancient artifacts from historical sites, that we can make a black hole in a basement apartment, and that a volcano might just erupt underneath Los Angeles the day after tomorrow. This course will examine how science is presented in movies and compare these portrayals to the true scientific concepts that are the basis of their screenplays.

WEEK 1-5 TENTATIVE LECTURE GAME PLAN
(subject to revision)

**Week 1 INTRODUCTION; GEOLOGY**
Subject Movie*: Journey to the Center of the Earth (1959)
Tues: Introduction, distribution of syllabus. How geologists study the interior of the Earth (Lecture)
Wed: How Jules Verne and Hollywood portrayed the interior of the Earth (Class Discussion)

**Week 2 BIOLOGY**
Subject Movie*: Evolution (2001)
Tues: Evolutionary change in the rock record (Lecture)
Wed: How Ivan Reitman and Hollywood portrayed evolution in their movie (Class Discussion)

**Week 3 GEOGRAPHY**
Subject Movie*: The Day After Tomorrow (2004)
Tues: How geoscientists study climate change (Lecture)
Wed: How Roland Emmerich and Hollywood portrayed climate change in their movie (Discussion)

**Week 4 ASTRONOMY/PHILOSOPHY**
Subject Movie*: Contact (1997)
Tues: How science, religion and society can work together

**Week 5 MARDI GRAS WEEK**
Subject Movie**: Personal Movie Choice
Tues: Mardi Gras (no classes; but watch 1 science movie of your choice)
Wed: Discussion: The movie I chose for my final project and why I chose it (max 12 mins each)

Midterm exam March 8th
Final Exam: Thursday May 9: Final Exam – 3:30 – 5:30 PM

Foot notes: * Movies will be available on DVD, possibly through the USA Library. Occasionally, we will schedule mid-week public viewing at the time most convenient for the participant.

** The movie chosen will constitute subject material for your midterm exam
**Text book:** None

**Assessment:**

- Attendance: 05%
- Weekly discussion participation: 25%
- Writing assignments: 10%
- Term Paper***: 20%
- Mid term exam: 20%
- Final Exam: 20%

**Grading:**

- A - 90+
- B - 80 to 89
- C - 70 to 79
- D - 60 to 69
- F - 59 and below

***The term paper is the capstone component of the class. Students will have a choice of three paper options: 1) A critical review of a science-themed movie not previously discussed in the class or 2) A rewrite of a screenplay of a science-themed movie that makes that movie more palatable as far as the science is concerned or 3) a totally new screenplay for a science-themed movie that is both accurate and crowd-pleasing.

**Attendance/Participation:** It seems that a good number of people who take courses feel they do not have to attend classes. Even more feel that they can ignore what’s actually being discussed in class. Nothing could be further from the truth. Much of the material we will discuss will not be covered in text books or on web pages and if you miss class or zone out during class, you will miss this material. Besides, it’s rude to the instructor. Attendance and discussion participation are is mandatory and assessable in ES 492. As far as attendance is concerned, I will dock you if you have 2 or more unexcused absences. If you have 4 or more unexcused absences you will receive 0% for attendance. Excessive absences (more than 30% of class meetings) will result in an additional punitive 10% reduction of your grade (e.g., I will dock you an additional letter grade). Failure to complete at least 50% of all assessable materials will result in an F*. There will be no exceptions to this policy. An unexcused absence is one where you fail to attend class and cannot provide an acceptable reason for your absence (e.g., medical excuse).

**Missed exams’ lateness penalty:** The reason for producing a syllabus is to give students advanced notice of exams and assignment due dates. **Translation:** there is no excuse for discussion sessions, or for turning assignments in late. As such you will receive an F if you do not turn in your assignments by the due date. If you have a legitimate excuse for missing an exam/discussion session (i.e. medical problem), you will be permitted to make the work up at a later time provided that you show us a signed certificate from a medical doctor stating that it was impossible for you to make the due date/exam.

**Plagiarism and cheating:** Neither are permitted in this class. In fact, either of them will result in severe embarrassment to you and quite possibly an F for the assignment or exam in question if you are caught doing them. If you are unsure of what constitutes plagiarism or cheating, talk to me. This will be your only warning.

**Disability disclaimer:** In accordance with the Americans with Disabilities Act, students with bona fide disabilities will be afforded reasonable accommodation. The Office of Student Disability Services will certify a disability and advise faculty members of reasonable accommodations. Students in need of accommodations due to a disability should make contact with the Office of Student Disability Services located at 320 Alumni Circle, Educational Services Building, Suite 19. Their phone number is (251) 460-7212.

**Changes in Course Requirements:** Since all classes do not progress at the same rate, instructors may wish to change the number and frequency of exams, or the number and sequence of assignments. Inclement weather (e.g., hurricanes) may also force rescheduling of lectures, assignments or exams. When ever possible, this material will be made up. Students will be given adequate written notice of any changes in lecture sequence, assignment due dates and/or exam date changes.

**Academic disruption:** I expect university students to be familiar with USA’s academic disruption policy (i.e., what it is, how it is handled). If you aren’t, please visit the following site: [http://www.southalabama.edu/lowdown/academicdisruption.shtml](http://www.southalabama.edu/lowdown/academicdisruption.shtml)
D. Haywick Contact Information and Schedule
Spring 2016 Semester

How & where to find Doug: I reside in LSCB room 049 and welcome any student enquiries during my posted office hours. When you visit, first check the Where's Doug? note on my door. During office hours, if I have to leave my office, I will tell you where I am. If you can, come find me. If the sign confirms that I am in the office, please knock loudly and wait for me to get to you. My office is at the back of my lab and it may take me up to a minute to get to the door. Should you be unsuccessful in your attempts to find me, leave a message for me:

**Telephone:** 460-7569 (Haywick’s direct office); 460-6381 (Earth Sciences office: best place to leave a message)
**e-mail:** dhaywick@southalabama.edu
**internet:** http://www.usouthal.edu/geology/haywick

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Note: grey areas are research/committee/personal times: STAY AWAY!

Laptops, cellphones, Tablets, PDAs, Wii/PS3/Xboxes, Nuclear Reactors etc. can NOT be used once the lecture starts. The first time I see you playing with anything electronic, I will politely ask you to turn it off. The next time, I will be less polite.

Don’t try it 3 times.